



Amendments to the Claims

1. (currently amended) An apparatus for measuring the reduced inorganic sulfur content of a sample, the apparatus ~~having~~ comprising a reaction chamber, means for introducing a selective reducing agent that can selectively convert the reduced inorganic sulfur of a sample in the reaction chamber to hydrogen sulfide, measuring means for measuring the amount of hydrogen sulfide evolved by reaction of the selective reducing agent with the sample, ~~and a detector for detecting when evolution of the hydrogen sulfide has reduced or ceased~~ wherein the measuring means is selected from the group consisting of an IR spectrometer, a gas chromatograph, a mass spectrometer, a turbidimetric analyzer, a gravimetric analyzer and an electrochemical gas analyzer.
2. (currently amended) The apparatus of claim 1, ~~which includes~~ further including a reservoir for storing a the selective reducing agent or a precursor thereof ~~and the reducing agent is selected from the group consisting of Cr(II), Sn(II) and Hg(II).~~
3. (currently amended) The apparatus of claim 2 27, wherein the reducing agent is chromous chloride.
4. (currently amended) The apparatus of claim 3, ~~which includes~~ including means for introducing predetermined amounts of chromium powder and hydrochloric acid into the reaction chamber such that chromous chloride can be generated in the reaction chamber.
5. (currently amended) The apparatus of claim 4 27, ~~which further includes~~ further comprising a source of hydrochloric acid and means for introducing the acid into the reaction chamber prior to introduction of the reducing agent such that the amount of any acid volatile sulfur in the sample can also be measured.

6. (currently amended) The apparatus of claim 1, ~~which includes~~ further including a source of a carrier gas ~~for introduction into~~ in fluid communication with the reaction chamber for introducing the carrier gas into the reaction chamber and carrying the hydrogen sulfide from the reaction chamber ~~and the carrier gas can carry any evolved hydrogen sulfide to the measurement~~ measuring means.

7. (cancelled)

8. (cancelled)

9. (currently amended) The apparatus of claim 1, ~~which includes~~ further comprising means for heating the reaction chamber.

10. (currently amended) The apparatus of claim 9 ~~1~~, ~~which includes~~ further comprising a condenser fluidly connected to the reaction chamber and a source of ~~refrigerated~~ cooling fluid for cooling the condenser.

11. (currently amended) The apparatus of claim ~~10~~ 9, ~~which includes~~ further comprising heater control means for controlling operation of ~~deactivating~~ the heating means ~~and source of refrigerated fluid when evolution of hydrogen sulfide has ceased.~~

12. (currently amended) The apparatus of claim 1, ~~which includes~~ further comprising a central control unit for controlling the introduction of the reducing agent and any other reagents to the reaction chamber.

13. (currently amended) The apparatus of claim ~~10~~ 12, wherein the control unit includes calculating means for calculating the amount of reduced inorganic sulfur in the sample from the measured ~~sulfur hydroxide~~ hydrogen sulfide.

14. (currently amended) The apparatus of claim 1, ~~which includes a~~ including signaling means for ~~signalling~~ signaling when evolution of hydrogen sulfide has ceased.

15. (currently amended) The apparatus of claim 1, wherein the measuring means detects when evolution of hydrogen sulfide ~~evolution~~ has reduced or ceased.

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (currently amended) The apparatus of claim ~~19~~ 1, ~~which is in the form of~~
wherein said apparatus is a portable unit.

22. (currently amended) A method of measuring the amount of reduced inorganic sulfur in a sample, the method including reacting a sample with a selective reducing agent that selectively converts the reduced inorganic sulfur in the sample to hydrogen sulfide but does not convert organic sulfur or sulfate material to hydrogen sulfide, and measuring the hydrogen sulfide evolved ~~as a function of time~~.

23. (cancelled)

24. (currently amended) The method of claim ~~23~~ 32, wherein the reducing agent is chromous chloride.

25. (currently amended) The method of claim 22, wherein ~~means for securing~~ the hydrogen sulfide evolved is measured by a measuring apparatus selected from the group consisting of an IR spectrometer, ~~a UV spectrometer~~, a gas chromatograph, a

mass spectrometer, a turbidimetric analyzer, a gravimetric analyzer and an electrochemical gas analyzer.

26. (original) The method of claim 22, wherein the sample is selected from the group consisting of sediment, soil, sludge, petroleum, mine spoil, coal, oil, water, plant, animal or mineral material.

27. (new) An apparatus for measuring the reduced inorganic sulfur content of a sample, the apparatus comprising a reaction chamber, means for introducing a selective reducing agent that can selectively convert the reduced inorganic sulfur of a sample in the reaction chamber to hydrogen sulfide, measuring means for measuring the amount of hydrogen sulfide evolved by reaction of the selective reducing agent with the sample, wherein the selective reducing agent is selected from the group consisting of Cr(II), Sn(II) and Hg(II).

28. (new) The apparatus of claim 27, further comprising a reservoir for storing a reducing agent or precursor thereof.

29. (new) The apparatus of claim 27, further comprising a detector for detecting when evolution of the hydrogen sulfide has reduced or ceased.

30. (new) The apparatus of claim 1, further comprising a source of hydrochloric acid and means for introducing the acid into the reaction chamber prior to introduction of the reducing agent such that the amount of any acid volatile sulfur in the sample can also be measured.

31. (new) The apparatus of claim 1, further comprising a detector for detecting when evolution of hydrogen sulfide has reduced or ceased.

32. (new) A method of measuring the amount of reduced inorganic sulfur in a sample, the method including reacting a sample with a selective reducing agent that

selectively converts the reduced inorganic sulfur in the sample to hydrogen sulfide, the reducing agent being selected from the group consisting of Cr(II), Sn(II) and Hg(II), and measuring the hydrogen sulfide evolved.

33. (new) The method of claim 24 wherein the chromous chloride is generated in a reaction chamber by introducing predetermined amounts of chromium powder and hydrochloric acid into the reaction chamber.

34. (new) The method of claim 22 wherein the evolved hydrogen sulfide is measured as a function of time.

35. (new) The method of claim 22 wherein hydrochloric acid is mixed with the sample prior to mixing of the sample with the selective reducing agent whereby any acid volatile sulfur in the sample is reacted to evolve hydrogen sulfide and measuring the hydrogen sulfide.

36. (new) The method of claim 22 wherein the evolved hydrogen sulfide is oxidized and the oxidized hydrogen sulfide is measured to determine the amount of reduced inorganic sulfur.